

I was first licensed in the amateur radio service in 1948, upgraded to Extra class in 1952, and have operated amateur radio extensively in the US as well as overseas. I am a semi-retired Electrical Engineer working as a consultant to a Government agency and a non-profit organization dealing with electromagnetic compatibility and radio frequency allocations. This submittal is limited to my personal comments. I oppose the deployment of the proposed BPL system.

This submittal is a reply comment relative to the many respondents that focus only on the communication aspect of the proposed BPL without regard, or understanding, that by far most of the generated radio frequency (RF) energy is expected to be radiated and therefore be an interference potential to essential FCC licensed or Government authorized systems.

From the standpoint of allocations, systems that claim to communicate over electrical power wires (such as the proposed BPL) are really radiating systems because most of the RF energy is radiated and with very little energy conducted along the power line for the purpose of communications! Although, the proponents of the BPL system usually address the expected communications results of transmitting radio RF energy over power wires, the power wires ARE REALLY LARGE UNRESTRICTED ANTENNA SYSTEMS, that can be expected to radiate the RF energy at appreciable distance. The situation is much like pumping a tank of gasoline into a 1 ounce shot glass without regard to the potential impact on the environment caused by the spilled gasoline.

First, the following calculations will support that systems claiming to propagate over power wire must be considered as radiating systems. Second, my personal experiences will be presented showing interference to the amateur radio service from part 15 devices.

I understand that Power Line Carrier (PLC) transmitters operated by the power utilities under provision of part 15 use various power levels up to 100 Watt. Many PLC systems use a 10 Watt (+40 dBm) transmitter to produce a 0.00001 Watt (-20 dBm) signal at a distant receiver. Most of the RF energy is lost, that is, the PLC system uses much less than 1% of the generated RF energy for communications. Losses are via conduction and radiation. The conduction loss is very low because the RF current flows through a large power line wire that has a very low resistance. Then, nearly all of the RF energy loss is through radiation into space. This shows that, from the consideration of the flow of RF energy, a PLC system is essentially a RF radiation device with an incidental usage of RF for communications. This fact is contrary to the verbiage in part 15.

During the past few years, high signal levels from part 15 devices have been received and caused interference at my amateur station, K3DI. Interference was from three Wireless Modem Jacks (WMJ); a low power in-house RF system used to connect a computer to a telephone jack in another part of the home without needing wires. In each case these devices radiated 24 hours per day and

were left connected during telephone voice communications which allowed me ease-drop and finally to identify the users. The following are the frequency, received signal strength, WMJ location, and distance from my station to each of three WMJ. Significant dates are listed.

3535 kHz - S9+40dB - Rolling View Dr - 0.7 miles
3/20/00 First heard
4/9/00 Identified and informed user
8/1/00 User disconnected the WMJ when I explained the
FCC fine structure

3509 kHz - S9+5dB - Andrew Hill Rd - 1.2 miles
9/5/00 First heard
9/22/00 Identified and informed user
10/20/00 Interference gone

3539 kHz - S8 - Bellerive Ct - 1.0 miles
11/28/02 First heard
1/7/03 Identified. Told user who unplugged his device.

By far, the most time consuming part of eliminating the interference was the many hours of listening to voice transmissions from which the user could be identified.

I realize that I should have reported the above three interference cases to the FCC which would place an obligation on the FCC to dispatch a radio direction finding (RDF) truck to locate the sources of interference. Instead, I monitored the voice conversations and contacted the WMJ users directly.

Without some way of identifying the proposed BPL system, I would expect that the FCC will need to add hundreds of RDF trucks to their inventory so there will be capability to resolve interference complaints resulting from BPL interference. Though I am directly concerned about interference to the amateur radio service, I expect that the FCC will need to respond rapidly to interference reports from licensees of state and local governments, the military departments, Government agencies, and commercial systems.

Based on interference potentials discussed in detail in other comments, it is quite apparent that if the BPL is approved and operated, there will be many interference reports from operators of FCC licensed and Government authorized systems. And based on the many hours consumed to identify the above WMJ user, an identification must be incorporated into a BPL system transmission so that licensed/authorized system can report the source interference to the FCC. If the proposed BPL is approved, I envision the need for the FCC to establish an internet web page for reporting interference cases and the web page would generate an automated citation letter from the FCC to the BPL user.

Respectively submitted, Richard L Wilder, K3DI

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